

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

IPA TECHNOLOGIES, INC.,

Plaintiff,

v.

AMAZON.COM, INC., and AMAZON DIGITAL
SERVICES, LLC,

Defendants.

**REDACTED PUBLIC
VERSION**

Civil Action 1:16-CV-01266-RGA

JURY TRIAL DEMANDED

**OPENING BRIEF IN SUPPORT OF MOTION
FOR SUMMARY JUDGMENT OF NON-INFRINGEMENT OF DEFENDANTS
AMAZON.COM, INC. AND AMAZON DIGITAL SERVICES LLC**

Dated: June 25, 2021

ASHBY & GEDDES

Of Counsel:

J. David Hadden
Saina S. Shamilov
Ravi Ranganath
Vigen Salmastlian
FENWICK & WEST LLP
801 California Street
Mountain View, CA 94041
(650) 988-8500

Steven J. Balick (#2114)
Andrew C. Mayo (#5207)
500 Delaware Avenue, 8th Floor
P.O. Box 1150
Wilmington, DE 19899
(302) 654-1888
sbalick@ashbygeddes.com
amayo@ashbygeddes.com

*Attorneys for Defendants Amazon.com, Inc.
and Amazon Digital Services, LLC*

Todd R. Gregorian
Sapna S. Mehta
Eric B. Young
Min Wu
FENWICK & WEST LLP
555 California Street, 12th Floor
San Francisco, CA 94104
(415) 875-2300

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3	Excerpt of Prosecution History of U.S. Patent No. 6,851,115 (“115 Patent Prosecution History”)
4	Opening Expert Report of Nenad Medvidovic, Ph.D. (“Medvidovic Op. Rpt.”)
5	Rebuttal Expert Report of Nenad Medvidovic, Ph.D. (“Medvidovic Reb. Rpt.”)
6	Reply Expert Report of Nenad Medvidovic, Ph.D. (“Medvidovic Reply Rpt.”)
7	Rebuttal Expert Report of Katia P. Sycara, Ph.D. (“Sycara Reb. Rpt.”)
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13	Excerpt of Deposition Transcript of Kelly Vanee (“Vanee Dep.”)
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16	AMZ IPA 00149335-39, [REDACTED]
17	AMZ IPA 00244902-04, [REDACTED]

I. NATURE AND STAGE OF THE PROCEEDINGS

Plaintiff IPA Technologies, Inc. (“IPA”) filed this patent infringement action against Defendants Amazon.com, Inc. and Amazon Digital Services, LLC (collectively, “Amazon”) on December 19, 2016, and amended its complaint on April 11, 2018, asserting infringement of a total of six patents. (D.I. 1; D.I. 33.) The Court held three of these patents invalid for failure to claim patent-eligible subject matter under 35 U.S.C. § 101. (D.I. 53.) On June 18, 2021, IPA stated that it would no longer pursue its claim on U.S. Patent No. 7,036,128. (D.I. 275.) IPA now asserts just two patents—U.S. Patent Nos. 6,851,115 (the “’115 patent”) and 7,069,560 (the “’560 patent”) (collectively, the “asserted patents”)¹—both of which expired on January 5, 2019. (*Id.*) Fact and expert discovery are closed. The pretrial conference is set for November 5, 2021, and jury trial is set to begin on November 15, 2021. (D.I. 262.)

II. SUMMARY OF ARGUMENTS

There is no genuine issue of material fact that the accused Amazon Alexa technology does not infringe the asserted claims. All asserted claims require an “inter-agent language” or “ICL,” which the Court has construed as “an interface, communication, and task coordination language.” IPA’s technical expert argues that [REDACTED]

[REDACTED]

[REDACTED] It is undisputed that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹ The ’560 patent is a continuation of the ’115 patent, and both patents share an identical specification.

² As discussed further below, [REDACTED]

[REDACTED]

Accordingly, Alexa cannot meet the “inter-agent language” or “ICL” limitation. This alone is fatal to the IPA’s infringement claims. However, IPA’s hodge-podge of infringement theories fail for additional reasons. For example, as explained below, there is no genuine dispute that Alexa does not meet the “layer of conversational protocol,” “event types,” “arbitrarily complex” or “compound” goal, or “agent registry” claim limitations.

III. STATEMENT OF FACTS

A. The Asserted Patents

The asserted patents describe a software architecture called the “Open Agent Architecture” or “OAA,” in which various “autonomous electronic agents” perform “cooperative task completion” with the help of a “facilitator[.]” (’115 patent at Abstract.) As described in the patents and illustrated in Figure 4, reproduced below, a service-providing agent (*e.g.*, Application Agent 404) declares its capabilities in an agent registry (*e.g.*, Registry 416), a service-requesting agent (*e.g.*, User Interface Agent 408) constructs an arbitrarily complex goal and sends it to the facilitator (*e.g.*, Facilitator Agent 402), and the facilitator breaks down the complex goal into sub-goals that it delegates to one or more service-providing agents, which the facilitator selects based on the registered capabilities of those agents. (’115 patent, Fig. 4.) As illustrated in Figure 4, reproduced here, (element 418) and described in the specification, the agents communicate with the facilitator and among themselves using “messages” expressed in an “inter-agent communication language” or “ICL,” ensuring that “agents will speak the same language.” (*Id.* at 10:40-42, 13:45-48;

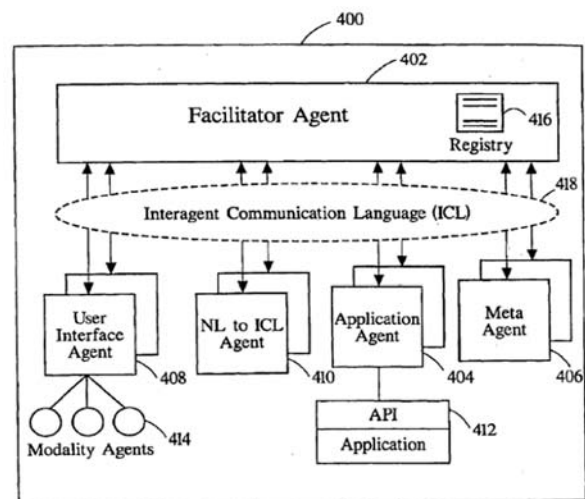


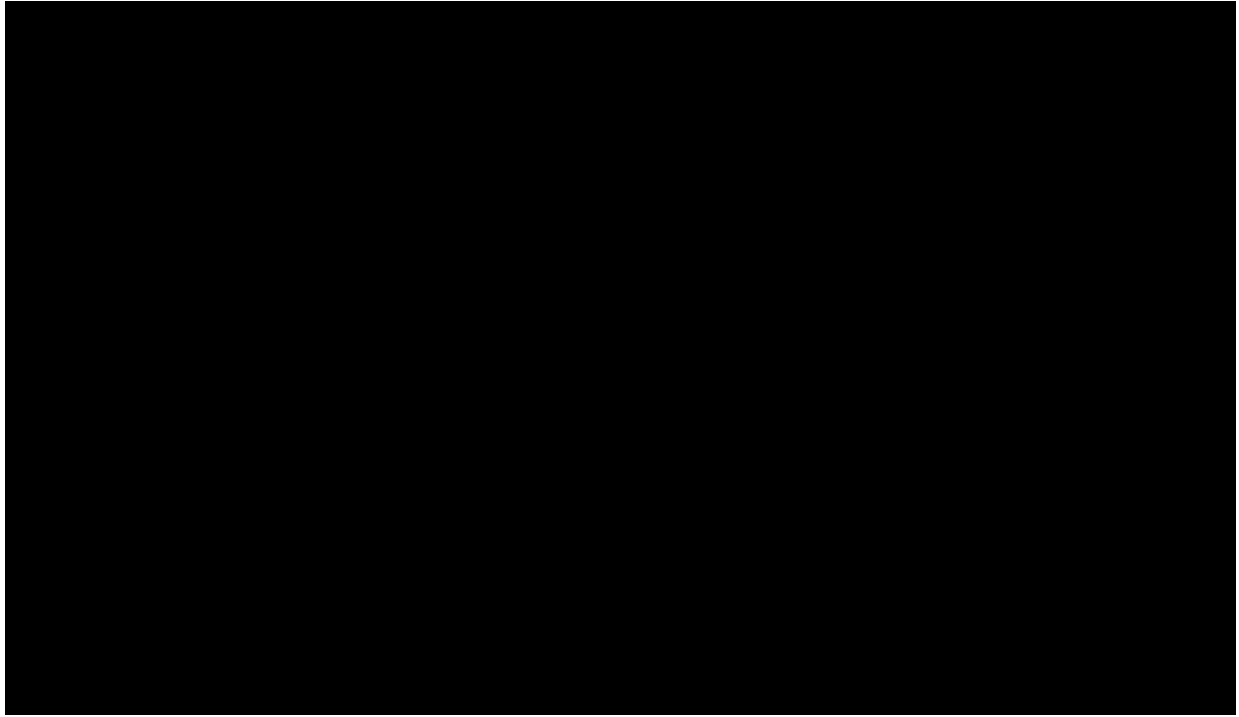
Fig. 4

see also id. at 1:29-33, 7:27-36, 10:49-60.) The agents employ ICL to perform a variety of tasks. (*Id.* at 10:57-60.) For example, the agents' capability declarations, service requests, and the sub-goals derived from a compound goal are each expressed in ICL. (*Id.* at 10:61-11:10, 12:55-65, 20:62-21:6.)

The ICL includes two layers: a layer of conversational protocol and a content layer. (*Id.* at claims 1, 29; 11:11-15.) The Court construed "a layer of conversational protocol" as "a layer of rules which govern the structure of interagent communications," and "a content layer" as "a layer, which specifies the content of interagent messages." (D.I. 128 at 2.) The layer of conversational protocol is "defined by event types and parameter lists associated with one or more of the events, wherein the parameter lists further refine the one or more events." ('115 patent at claims 1, 29; 11:11-15.) The Court construed "event" as "a message between agents or between an agent and a facilitator." (D.I. 128 at 2.) The specification describes an example of ICL as "ev_post_solve(Goal, Params)," which is a message "going from [agent] A to the facilitator" in which "ev_post_solve is the [event] type, Goal is the content, and Params is a list of parameters." (*Id.* at 11:6-8.) For example, a requesting agent can specify the "solution_limit(N)" parameter, which is a parameter in the layer of conversational protocol that specifies the number of solutions the requesting agent is seeking from the service providing agents. (*Id.* at 11:25-28, 16:1-4.)

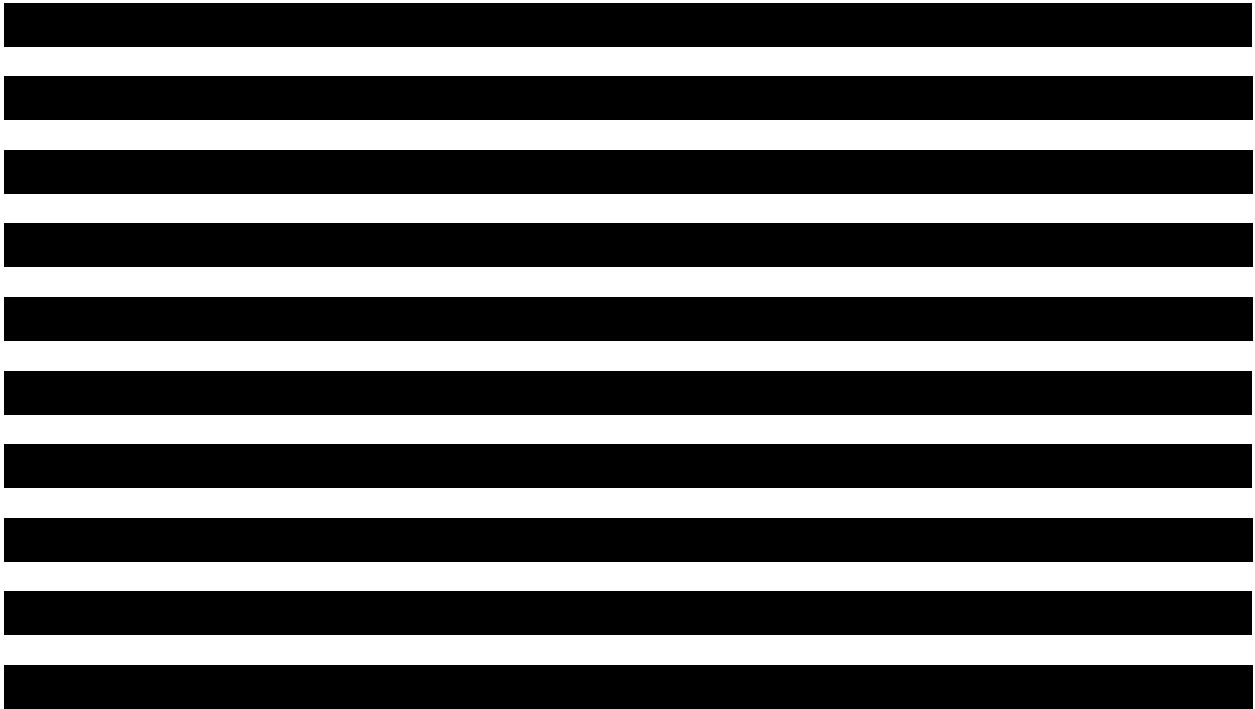
B. The Accused Alexa Technology

Alexa is a voice-based virtual assistant that interacts with users through Alexa-enabled devices, such as the Echo smart speaker, to answer questions, play music, stream real-time information about weather, or news, and perform hundreds of other tasks characterized as Alexa's "skills." (Sycara Reb. Rpt., ¶ 75.) The Alexa architecture is illustrated below:



(*Id.* (citing Ex. 14 at AMZ_IPA_00024710.))

The basic operation of Alexa is undisputed:



 (Sycara Reb. Rpt., ¶¶ 75-94; Medvidovic Op. Rpt., ¶¶ 102-105; Medvidovic Reply Rpt.,

¶ 59.) A [REDACTED] skill is a service which can perform a certain action or operation. (Sycara Reb. Rpt., ¶ 78.) For example, [REDACTED] Uber rides is a third-party skill provided by Uber. (*Id.*, ¶ 78, 91.)

IV. LEGAL STANDARDS

“The court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). The moving party bears the initial burden of demonstrating the absence of issues of material fact. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). The burden shifts to the non-movant to demonstrate the existence of a genuine issue for trial. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586-87 (1986).

A patent is infringed when a person “without authority makes, uses, offers to sell, or sells any patented invention, within the United States . . . during the term of the patent[.]” 35 U.S.C. § 271(a). “Literal infringement of a claim exists when every limitation recited in the claim is found in the accused device.” *Kahn v. Gen. Motors Corp.*, 135 F.3d 1472, 1477 (Fed. Cir. 1998). “When an accused infringer moves for summary judgment of non-infringement, such relief may be granted only if at least one limitation of the claim in question does not read on an element of the accused product[.]” *TQ Delta, LLC v. 2Wire, Inc.*, 373 F. Supp. 3d 509, 518 (D. Del. 2019).

V. ARGUMENT

The accused Alexa technology does not infringe any of the asserted claims in this case: claims 10, 29, 34, 35 and 38 of the ’115 patent and claims 28 and 50 of the ’560 patent.³

³ Claim 10 of the ’115 patent depends from unasserted claims 1 and 5. Claim 28 of the ’560 patent depends from unasserted claim 26.

A. Alexa Does Not Meet the Inter-agent Language or ICL Limitations.

1. Alexa does not use an ICL.

All asserted claims require either an “inter-agent language” or an “ICL.” (’115 patent, claims 1, 29; ’560 patent, claims 26, 50.) The ICL is a key feature of the purported invention, and the only reason the examiner allowed the asserted patents. (Ex. 3 at AMZ_IPA_00100232 (examiner distinguishing ICL’s layer of conversational protocol from the prior art reference Nwana).) The Court construed both “inter-agent language” and “ICL” as “an interface, communication, and task coordination language.” (D.I. 128 at 2.) No such inter-agent language or ICL exists in Alexa.⁴

IPA’s technical expert Dr. Medvidovic asserts that [REDACTED]

[REDACTED] (Medvidovic Op. Rpt., ¶¶ 137, 146, 151; Medvidovic Reply Rpt., ¶¶ 57, 61; Medvidovic Dep. (Day 2) at 21:8-11.) [REDACTED]

[REDACTED]

[REDACTED]

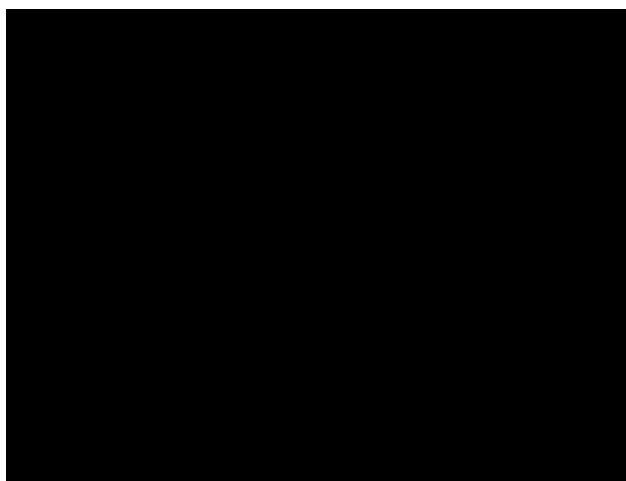
[REDACTED]

[REDACTED] Dr. Medvidovic acknowledges that

[REDACTED] (Medvidovic Dep. (Day 2)

at 82:14-15.) This is shown below:

⁴ IPA’s expert does not apply the Court’s construction. He argues [REDACTED] but does not explain how this meets the requirements of an “interface, communication, and task coordination language” under the Court’s construction. (Medvidovic Op. Rpt., ¶¶ 137, 146, 151.)



(Sycara Reb. Rpt., ¶ 75 (citing AMZ_IPA_00024710) (annotated).)

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] By way of analogy,

when person A speaks only French to person B, and person B speaks only Japanese to person C, French and Japanese are obviously not two parts of the same language.

Nor do the two objects IPA points to meets the requirements of the claimed ICL. The asserted claims require both (1) that the ICL includes a layer of conversational protocol, and (2) that a service request is expressed in ICL. ('115 patent, claims 1, 29; '560 patent, claims 26, 50.)

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

⁵ That theory is erroneous as discussed below in Subsection V.B.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] IPA’s theory effectively eliminates the inter-agent language/ICL claim limitation, and simply calls everything under the sun a *part* of the language. Under that theory, two agents that both speak the inter-agent language do not even need to understand each other, because they each may only understand a small portion of that purported language. That is not the purported invention of the patents, and not what the patent claims require.

2. Alexa does not express service requests using ICL.

All asserted claims require a “request for service” or “service request” in the inter-agent language or ICL. (’115 patent, claims 1, 29; ’560 patent, claims 26, 50.) There cannot be service requests expressed in ICL, because there is no ICL in Alexa, as explained above. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Medvidovic Reply Rpt., ¶ 63.)

Thus, IPA cannot show that the accused Alexa technology meets the limitations requiring a “request for service” or “service request” using the ICL.

B. Alexa Does Not Meet the Layer of Conversational Protocol Limitations.

1. Alexa does not use an ICL with a layer of conversational protocol.

All asserted claims require a “layer of conversational protocol” within the inter-agent language or ICL. (’115 patent at claims 1, 29; ’560 patent at claims 26, 50.) The Court construed “a

layer of conversational protocol” as “a layer of rules which govern the structure of interagent communications.” (D.I. 128 at 2.)

By conflating the *conversational protocol* layer

with the *content* layer, Dr. Medvidovic ignores the Court’s claim construction order, which rejected IPA’s attempt to insert the concept of “goal” (content layer) into the construction of “event” (layer of conversational protocol). (D.I. 126 at 6-7.) IPA thus cannot show that the accused Alexa technology meets the “layer of conversation protocol” limitation as a matter of law.

2. There are no event types in the alleged layer of conversational protocol.

All asserted claims require that the layer of conversational protocol is defined by, among other things, “event types.” (’115 patent at claims 1, 29; ’560 patent at claims 26, 50.) The Court construed “event” as “a message between agents or between an agent and a facilitator.” (D.I. 128 at 2.) Therefore, “event types” must specify *different* message types.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] IPA cannot show that the accused Alexa technology meets the “event types” limitation.

C. Alexa Does Not Meet the Arbitrarily Complex or Compound Goal Limitations.

All asserted claims of the ’115 patent require an “arbitrarily complex” goal and asserted claim 28 of the ’560 patent requires a “compound goal.” (’115 patent at claims 1, 29; ’560 patent at claims 26.) The Court construed “arbitrarily complex” goal expression or base goal as “*a single goal expression* expressed in a language or syntax that allows[] *multiple sub-goals* and potentially

includes more than one type of logical connector (e.g., AND, OR, NOT), and/or more than one level of logical nesting (e.g., use of parentheses), or the substantive equivalent,” and construed “compound goal” as “a single-goal expression comprising multiple subgoals.” (D.I. 128 at 2.) In other words, both of these terms require one expression comprising multiple subgoals. The “arbitrarily complex” goal term also requires that the “language or syntax” supports “*more than one* type of logical connector[,] . . . *more than one* level of logical nesting[,] . . . or the substantive equivalent.” Dr. Medvidovic *agrees* that the language after “potentially” refers to “the capability of the language or syntax to express the various logical connectors, nesting or equivalent.” (Medvidovic Dep. (Day 1) at 37:1-11.) That means the language or syntax must be capable of expressing at least two logical connectors, two levels of logical nesting, or the equivalent. Otherwise the part of the construction after “potentially” would be rendered meaningless.

Dr. Medvidovic advances three different theories to argue that Alexa meets the arbitrarily complex or compound goal limitations: [REDACTED]

[REDACTED]

[REDACTED] But each of these theories fails: [REDACTED]

[REDACTED] and none of the theories includes a “language or syntax” capable of expressing more than one type of logical connector, more than one level of nesting, or the substantive equivalent.

1. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Dr. Medvidovic does not, and cannot, point to a single “expression” [REDACTED]
whether in natural language or in ICL. [REDACTED]

[REDACTED]

Further, with respect to the “arbitrarily complex” goal in the ’115 patent, Dr. Medvidovic

⁶ [REDACTED]

never points to any logical connector, logical nesting, or substantive equivalent [REDACTED]

[REDACTED] Instead, he argues that one can simply ignore these requirements because “potentially” including something means they are entirely optional. (Medvidovic Reply Rpt., ¶ 78.) The construction, however, requires that the “language or syntax” has built-in support for logical connectors and the like. In other words, the software reading such expressions must be able to recognize and correctly parse logical connectors and the like contained in the expressions. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Alexa cannot interpret *more than one type* of logical connector as required by “arbitrarily complex” goal.

The capability of specifying sub-goals using multiple logical connectors in an “arbitrarily complex” goal is a key feature of the asserted patents. Indeed, the inventors of the asserted patents considered this ability to parse more than one type of logical connector an improvement over the prior art:

The initial version of [OAA] technology provided only a very limited mechanism for dealing with compound goals. Fixed formats were available for specifying a flat list of either conjoined (AND) sub-goals or disjoined (OR) sub-goals More complex goal expressions involving (for example) combinations of different boolean connectors . . . were not supported.

(’115 patent at 4:44-54.) [REDACTED]

[REDACTED]

[REDACTED]

D. Alexa Does Not Meet the Agent Registry Limitations.

All asserted claims require an agent registry to register the capabilities of the agents. ('115 patent at claims 10, 29; '560 patent at claims 26, 50.) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] With respect to claim 10 of the '115 patent, Alexa does not register agent capabilities using ICL. With respect to claim 28 of the '560 patent, Alexa does not register trigger declarations.

1. Hashmaps are not agent registries.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Using Figure 7 of the '115 patent as an example, a hashmap at best includes information similar to “Symbolic Name

704” and “Unique Address 706,” but not “Capability Declarations 708” which is required by the claims.

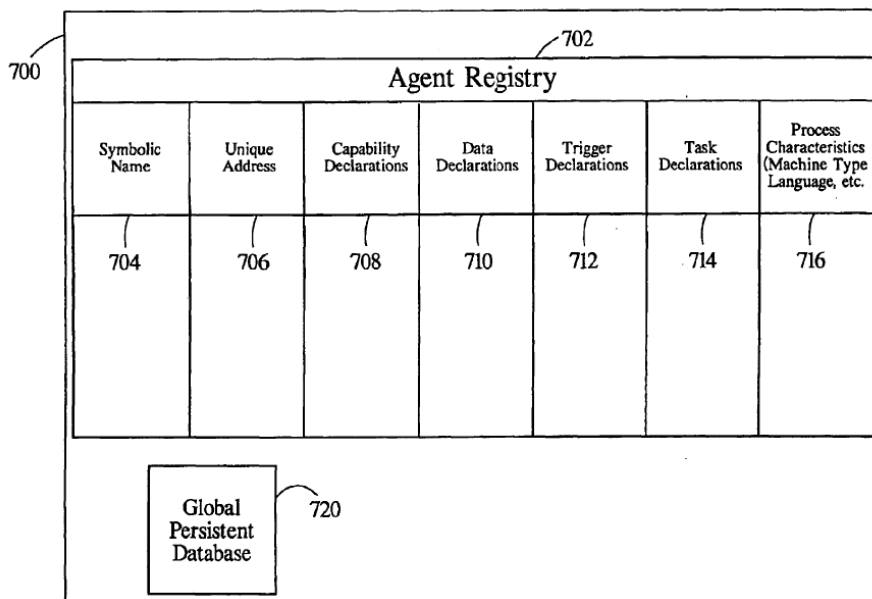


Fig. 7

(’115 patent at Fig. 7.)

Indeed, Dr. Medvidovic never explains what the registered capabilities are, or even point to a single example of capabilities for any speechlet or skill stored in these registries.

2.

[REDACTED]

Further, asserted claim 10 of the '115 patent, which depends from claim 1, requires “registering a description of *each* active client agent’s functional capabilities.” ('115 patent at claim 1 (emphasis added).) [REDACTED]

[REDACTED]

Finally, asserted claim 50 the '560 patent requires “synchronized agent registries each declaring capabilities.” ('560 patent at claim 50.) Dr. Medvidovic admits that “synchronized” means “a condition where the same data is in two or more locations at the same time.” (Medvidovic Reb. Rpt., ¶ 851.) Therefore, at a minimum there must be two “agent registries” that share the same data representing registered agent capabilities. [REDACTED]

[REDACTED]

[REDACTED]

3. Alexa does not register agent capabilities using ICL.

Asserted claim 10 of the '115 patent, which depends from claim 1, requires “registering” the agents’ “capabilities” using the inter-agent language. ('115 patent at claim 1.) [REDACTED]

[REDACTED]

[REDACTED] Therefore, no agent capabilities are registered *using ICL*.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Dr. Medvidovic admits that “inquiry time” is distinct from and occurs later than “registration time.” (Medvidovic Dep. (Day 2) at 162:22-163:2; *see also* ’115 patent at 7:19-29 (“Upon connection, an agent *registers* . . . a specification of the capabilities *Later during task completion*”) (emphasis added).) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

4. Alexa does not register trigger declarations.

Asserted claim 28 of the ’560 patent requires that the agent registry includes, *inter alia*, “trigger declarations.” (’560 patent at claim 28.) Dr. Medvidovic has not identified any trigger declarations in any of the registries, [REDACTED]

[REDACTED] (See Medvidovic Op. Rpt., ¶¶ 494-504.) Therefore, IPA cannot meet its burden of proof with respect to claim 28 of the ’560 patent.

VI. CONCLUSION

For the foregoing reasons, Amazon respectfully requests that the Court grant Amazon’s motion for summary judgment and find that Amazon does not infringe any asserted claims of the asserted patents.

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Of Counsel:

J. David Hadden
Saina S. Shamilov
Ravi Ranganath
Vigen Salmastlian
FENWICK & WEST LLP
801 California Street
Mountain View, CA 94041
(650) 988-8500

Todd R. Gregorian
Sapna S. Mehta
Eric B. Young
Min Wu
FENWICK & WEST LLP
555 California Street, 12th Floor
San Francisco, CA 94104
(415) 875-2300

Respectfully submitted,

ASHBY & GEDDES

Andrew C. Mayo

Steven J. Balick (#2114)
Andrew C. Mayo (#5207)
500 Delaware Avenue, 8th Floor
P.O. Box 1150
Wilmington, DE 19899
(302) 654-1888
sbalick@ashbygeddes.com
amayo@ashbygeddes.com

*Attorneys for Defendants
AMAZON.COM, INC. and
AMAZON DIGITAL SERVICES LLC*